

The Ability of Aerial Tankers to Support Global Engagement

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**The Ability of
Aerial Tankers to Support
Global Engagement**

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Executive Summary

The United States Air Force's new vision for the 21st Century includes the doctrine of 'Global Engagement'. This doctrine is comprised of these six core competencies:

- a. Air and Space Superiority
- b. Global Attack
- c. Rapid Global Mobility
- d. Precision Engagement
- e. Information Superiority
- f. Agile Combat Support

Each of these core competencies is in some way dependent on the Air Force's tanker fleet of KC-135's and KC-10s. Since the Air Force's reorganization of 1992, several key issues have transpired that affect the tanker fleet's ability to support these six core competencies.

First is the age and modernization of the KC-135. Brought into the inventory in the late 50s and early 60s, this aircraft comprises 90% of the total aerial refueling aircraft. Although most have been re-engined, other modernization efforts have been shifted to the right due to fiscal constraints. This forces reliance on an airframe barely keeping up with Federal Aviation Administration regulations.

With the shift of scheduling responsibilities to Air Mobility Command, tanker aircraft mission focus has shifted from one of primarily aerial refueling to one that equates aerial refueling with airlift. This change in focus will no doubt reduce the active service life of the KC-135 and force earlier retirement and replacement of these aircraft.

The peacetime scheduling of these assets through the Tactical Airlift Control Center (TACC) maximizes peacetime utilization, but instills a false sense of strategic lift capabilities when tanker assets are chopped to theater CINCs during contingency operations. Thereby, decreasing lift assets at the same instant airlift requirements increase.

Lastly, the reorganization that placed over 50% of the tanker assets in the Guard and Reserve serves the peacetime Air Force well. This may not be the case in a contingency should the National Command Authority delay a Guard/Reserve call up decision.

These three issues alone affect the tanker forces ability to fulfill its responsibilities during contingency operations. Ignoring these issues now, may have far reaching ramifications during contingency operations now and in the 21st century.

Core Competencies and the Tanker

Global Power, Global Reach has been the overarching philosophy of the Air Force for the last six years. It was defined by six objectives: sustain deterrence, provide versatile combat forces, supply rapid global air mobility, control the high ground, ensure information dominance and build U.S. influence.¹ In October 1996, the senior leadership of the Air Force refined this guiding doctrine with a new philosophy reflected in the term Global Engagement. Embedded in this term are six core competencies envisioned as the basic requirements of the world's best Air Force. Though these core competencies are considered crucial to the future of the USAF, they are not exclusive capabilities or missions of the U.S. Air Force. The six core competencies are:

- a. **Air and Space Superiority** -- control over what moves through air and space
- b. **Global Attack** -- ability to attack rapidly anywhere on the globe at any time

¹ The Nation's Air Force, 1996 Issues Book, 8

c. **Rapid Global Mobility** -- ability to move rapidly to any spot on the globe

d. **Precision Engagement** -- ability to apply selective force against specific targets and achieve discrete and discriminant effects

e. **Information Superiority** -- power to gain, exploit, defend and attack information

f. **Agile Combat Support** -- provision of strong combat support and fewer and leaner logistics force²

Transitioning from Global Power, Global Reach to the new vision of Global Engagement, more closely aligns the USAF's direction with the U.S. National Military Strategy. These newly refined core competencies are intended to better focus the Air Force and guide future decisions.

The intent of this paper is to provide an analysis of the ability of aerial tankers to support the U.S. Air Force's vision of the future and discuss several key issues that impact this ability. As a force multiplier, the tanker force does not directly fulfill any one core competency. The tanker force supports the core competencies by enhancing and extending the capabilities of other major weapon systems.

² Air Force Magazine Jan '97, 24

The core competency of **air and space superiority** focuses on the ability to control, and ultimately, target anything that moves through air or space. Although information can be gathered through remote equipment, the ability to place weapon systems in areas of interest or concern will be required indefinitely. Physical presence is still required to claim the area of operation; adversaries have not yet been willing to surrender based on wargaming analysis. With reduced presence overseas, increased commitments and instantaneous media focus, the military is expected to be anywhere on the globe overnight. Few aircraft can deploy around the world without aerial refueling or numerous time consuming enroute stops. In this rapid response environment, the short-notice requirements to project power around the globe rests on aerial tankers. For example, not only are tankers an integral part of deploying air superiority assets to a theater, they enable assets such as the F-15s to remain on station for Combat Air Patrol missions. Consequently, the ability to successfully achieve this core competency is inextricably linked to tankers. As we move more and more toward a stand off, space-oriented, information-based capable force, the demand for air refueling may diminish, but it will not disappear.

The concept of **global attack** is also highly dependent on air refueling assets to provide weapon systems the range to reach world-wide targets. The ability to range targets from CONUS-based assets provides the U.S. with a powerful diplomatic tool when encouraging adversaries to acquiesce. For almost any scenario, our combat aircraft require tanker assets to accomplish this task. In addition to extended range, tankers also provide additional loiter time and flexibility in mission timing. Orbiting tankers just outside enemy air defense range provides for timing delays and additional fuel to allow senior commanders and politicians mission delays and response options prior to enemy engagement.

The extensive military drawdown and return to CONUS basing has significantly reduced the permanently established U.S. forward presence in many regions around the world. "By 1999, eighty percent of U.S. forces will be CONUS based."³ This factor weighs heavily on the tanker force. The reduction in forward bases and troops increases the need for an extensive **rapid global mobility** capability. Although the strategic airlift community's aircraft have extended range, host nation basing rights, airfield limitations and overflight restrictions all lead to maximum use of tanker

³ Airlift/Tanker Quarterly, 31

aircraft to extend the air bridge and reduce the enroute factors that complicate the scenarios. Every enroute stop along the strategic air bridge increases the chance of delay for various reasons including maintenance problems, weather factors, aircrew limitations or diplomatic issues.

Therefore, by extending the air bridge, tankers play a key role in reducing the critical in-theater timeline. Tankers also provide limited mobility capability themselves. This can be a double edged sword because lift capacity is traded pound for pound with fuel. Every additional pound of cargo reduces the fuel available for receiver aircraft during inflight refueling.

Although the core competency of **precision engagement** may require fewer tanker assets as precision, standoff weapons capabilities improve in the future, tankers assets are invaluable due to the flexibility they grant mission planners. Increased reliability and improved accuracy may reduce the number of required munitions and therefore sorties, but the continued use of tankers will be required to ensure receiver aircraft have the increased flexibility necessary during employment. Although technological improvements have reduced the number of sorties to destroy a target, the ever growing need for reduced collateral damage drives the requirement for absolute accuracy. With the

emphasis on speed, accuracy and reduced aircraft signature, extended combat radius is not the number one priority. Since receiver aircraft rely on the tanker force for mission versatility, the tanker fleet is a key enhancement to today's need for responsiveness, flexibility, and options for varying degrees of lethality.

The fifth core competency, **information superiority**, is the power to gain, exploit, defend and attack information. This competency is also dependent on the tanker force. The drive for complete, timely and accurate information demands tanker assets contribute to this effort. Though absolute information is not possible, timely receipt of critical information regarding enemy positions, capabilities and the like is crucial. Tankers provide valuable inflight refueling to many manned reconnaissance sorties engaged in collection of this critical information. In addition, tankers also support the Suppression of Enemy Air Defense (SEAD) and electronic warfare (EW) missions invaluable to friendly force protection.

Agile combat support is heavily dependent on airlift as well as tanker aircraft. Lean logistics, also known as "just in time logistics", is a natural result of closing depots and the reduction in on hand inventories, both cost

savings measures.⁴ From a USAF view, this logistics philosophy plays heavily on the airlift community and the associated tankers necessary to support this requirement. Light, lean lethal combat capability is crucial to the future of military operations. However, the increased aircraft ranges required by CONUS-based operations directly impacts airlift and tanker capability.

Crucial to all six core competencies, it is impossible to separate the tanker fleet from the Air Force's guiding doctrine of global engagement. It is quite evident that the tanker fleet is a key ingredient to the successful achievement of any future military endeavor. Is the tanker fleet as a whole up to the task? Several issues may actually effect the tankers fleet ability to meets its responsibilities. First is the age of the tanker fleet itself and its need for modernization. Second is the peacetime scheduling system versus the realities of conflict utilization. Finally, the reorganization has caused a large dependence on the reserve force within the tanker community.

The Tanker Fleet

With an overreaching doctrine that places such emphasis on the requirement for aerial refueling, the tanker force

⁴Airlift/Tanker Quarterly, 31

will be a valuable weapon system for quite some time. Much like the remainder of the military force structure though, it is in need of major overhaul and modernization. Re-engined KC-135s are providing better fuel efficiency and increased offload capability, but these airframes are beginning to show signs of corrosion. Avionics upgrades are barely keeping pace with the Federal Aviation Administration's requirements. KC-135s are the aging core of the tanker fleet; they represent 90% of the tanker force. Procured between 1956 and 1965, tankers support deployment, employment, redeployment, special operations and Single Integrated Operations Plan (SIOP) needs. They are capable of refueling USAF boom receptacle aircraft or allied and sister service aircraft through an attachable drogue system, depending on which configuration is selected prior to launch. The KC-135 tanker fleet is expected to last well into the 21st Century. Some estimates list 2025 and beyond with phaseout beginning in the 2010 time frame.⁵ The KC-135 operations tempo has increased through increased strategic lift responsibilities in order to reduce the burden on the C-141 force. The result is a reduction in the life span of the KC-135 fleet, although the actual impact is still under debate.

⁵ USAF/XOF Briefing Spring 1996

The other tanker aircraft, the KC-10, was designed and built as a dual-role aircraft and became operational in the early 1980s. Its missions are split between airlift and air refueling. KC-10s comprise 10% of the tanker fleet and 13% of the strategic airlift capacity. The KC-10s greatest strength is its versatility; the airlift capability combined with its ability to refuel both receptacle and probe-equipped aircraft on the same mission makes it the choice of many deploying squadrons.⁶

Although the majority of the tanker fleet is older than the aircrews that fly them, they are of value across the spectrum of military engagement from conflict to peacekeeping and peacemaking operations. Utilized in a variety of missions, the challenge is to maximize the tanker fleet's capabilities. This includes the need to balance the KC-135's limited airlift capability with fuel offload requirements. Utilization of KC-135s for airlift missions takes the strain off the overworked C-141 airlift fleet, but places the KC-135 fleet in the position to be stressed much like the C-141s have been in the past. The dual-use KC-10, on the other hand, was designed for both missions: strategic lift and aerial refueling. In addition, the KC-10's boom and drogue offload systems do not require modification like the KC-135s; therefore, either refueling method is available

⁶ USAF/XOF Briefing Spring 1996

on any and all missions. However, the majority of the tanker fleet is composed of KC-135 airframes designed for boom refueling on a day to day basis. There are limited drogue-capable airframes at any given time.

Tanker Utilization

For day to day operations, tankers are used for aerial refueling as well as airlift, but during hostilities, the airframes are typically chopped to the CINC. This is unlike the strategic airlift assets that continue to transit the globe on resupply missions. In peacetime, the tanker fleet is used more in a strategic role, but during periods of conflict, its value as a force multiplier overrides this and the aircraft are utilized almost exclusively within the theater of operations. Once there, tankers provide aerial refuelings that allow receiver aircraft extended presence over a given area or additional on-station time for target confirmation prior to engagement.

In peacetime, day to day managing of the tanker fleet is done through Air Mobility Command (AMC). This allows maximum airframe utilization. The Tactical Airlift Control Center (TACC) is a twenty-four hour operation that schedules airlift and air refueling requirements around the world. This centralized control allows for a world-wide view of

assets and the optimization of airframes and aircrews. When the Air Force reorganized in 1992, the integration of tankers into the airlift system changed the focus of the tanker mission from almost exclusive aerial refueling to include a greater emphasis on its cargo carrying capability. The tanker has always been capable of transporting equipment, but in the past airlift was a secondary mission. These aircraft were not designed for efficient onload and offload of troops and/or equipment. With relatively "low mileage" for their age, KC-135 tankers have been an invaluable short-term solution to the strategic airlift equation. Their inefficiency in cargo movement has been overlooked to take advantage of the extremely low flight-hour time on the airframes.

Tankers have filled the gap between the flight restricted C-141s with their wing cracks and the C-17's arrival. However, filling the gap may shorten the tanker's expected life as previously discussed. Utilization of tankers in this manner may also induce a false sense of security in the strategic lift system because more aircraft are available during peacetime to perform lift operations than during hostilities. About the same instant the requirement for strategic lift increases, the tankers are needed in theater and chopped to the supported CINC. This

puts a heavy burden on Transportation Command (TRANSCOM) to meet increasing strategic lift requirements with fewer airframes than are utilized during day to day operations.

The Guard/Reserve Component

As there has been a shift in balance between aerial refueling and airlift missions for the tanker, there has also been a shift in balance between active and reserve structure in the tanker world. With the force structure drawdown of the early 1990s, a large percentage of Guard and Reserve units converted to the KC-135 tanker mission. Over fifty percent of the tanker fleet is now in the Guard and Reserve force. On a day to day, peacetime basis, this alignment of forces works well. The centralized scheduling of the TACC manages the flow of sorties regardless of crew composition. When the standard routes and missions, known as channel missions, are flown, the unit type (Active, Guard or Reserve) is transparent to the scheduling process. Complications arise when the trips are extended and rerouted. As professionals, most Guard and Reserve crews are committed to accomplishing the mission, but their primary job is outside the military and can not be ignored. Stateside missions and routine channel missions better fit the Guard and Reserve forces' need for structure and

consistency while allowing for maximum airframe utilization.

The realignment of forces becomes more apparent when short-notice taskings arise. The initial limitation for Guard and Reserve units is available aircrews. Once a stable requirement is identified in a timely manner, the scheduling system can again work the missions, indifferent to the unit type.

The other area where Guard and Reserve forces impact the tankers ability to support the core competencies is in contingency operations. Like short notice, unplanned sorties, these missions are unpredictable and can be difficult for reservists to fill. If the bulk of requirement is for deployment and redeployment sorties, Guard and Reserve crews are likely to provide a fair portion of the required asset capability. On the other hand, if the requirement is extended in-theater operations, Guard and Reserve crews are not able to remain in theater without national call up authority. Furthermore, the system's capability is stretched due to crew shortages and limitations before call up authority is implemented. Each new contingency or potential hostility will test, validate and highlight the capabilities and limitations of this alignment of force on the tanker fleet's ability to fulfill the core competency needs. This puts emphasis on the timely

decisions by the National Command Authority in order to maximize our leaner force's potential.

Conclusion

In conclusion, despite limitations or shortages, the tankers are a valuable force multiplier. They are a crucial requirement in the majority of contingency scenarios around the world. Though not state of the art in aviation, they are integral to the accomplishment of the Air Force's six core competencies. With reduced basing and a U.S. interest to maintain and or project presence around the globe, the tanker fleet contributes significantly to this capability. It is an older force that will continue to provide a valuable capability, but the fleet will need modifications and upgrades to maintain this capability.

Today's military emphasis is different from that of the Cold War, SIOP mission and the tanker fleet has greater world-wide impact at a time when power projection has become more critical. Assigned to AMC, the tankers were absorbed into a highly centralized scheduling process aimed at maximizing its peacetime use and relieving stress on an already stressed airlift system. This will indeed shorten the airframe life of the KC-135 fleet. Also, over fifty percent of the tanker fleet is assigned to Guard and Reserve

units; this has impact on short term flexibility. Aerial refueling along with airlift are better missions to assign the total force than front line combat missions. Although the bulk of the Air Force's refueling capability was retained by transferring it into the Guard and Reserve, the age of fleet, and the shortage of airframes and the associated refueling system limitations, combined with the reduced flexibility of Guard and Reserve forces, impacts contingency operations. This critical capability that tankers provide will be required for the next conflict. Understanding the key role tankers play in fulfilling the USAF concept of global engagement and the issues affecting the tanker fleet is invaluable to assuring future crises are supportable and sustainable.

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